THE DREDGING PROCESS

Opportunities to Avoid Windows

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WHY RESTRICT DREDGING?

- PROTECT AQUATIC SPECIES
  - SUSPENDED SEDIMENTS MAY IMPAIR
    - HEALTH
    - BEHAVIOR
  - CHEMICAL CONSTITUENTS ASSOCIATED WITH SEDIMENT MAY CAUSE
    - CHRONIC IMPACTS
    - ACUTE AFFECTS
  - SEDIMENT DEPOSITION MAY SUFFOCATE ELS FORMS

BUT WHY DO WE REALLY HAVE DREDGING WINDOWS?

MISPERCEPTION

MITED INFORMATION

WEAK SCIENCE

AVOIDANCE

E MANAGEMENT TOOL

OPPORTUNITIES

FOR REDUCING WINDOWS RELATED PROBLEMS

PROBLEM DEFINITION

- TIE CONDITIONS TO BIOLOGICAL IMPACTS OF CONCERN
  - WATER COLUMN CONDITIONS
    - SPACE, TIME, AND CONSTITUENT CONCENTRATIONS
  - DEPOSITIONAL CONCERNS
    - SPECIES
    - DEPTHS
- MAY REQUIRE SITE SPECIFIC STUDIES

KNOWLEDGE

- GATHER RESUSPENSION DATA FOR VARIOUS CONDITIONS
- DEVELOP DATABASE OF IMPACTS
- IMPROVE GENERAL UNDERSTANDING AND MODELING CAPABILITIES

PERFORMANCE CRITERIA

- CONCEPTUALLY OK, DIFFICULT TO IMPLEMENT
- SHOULD BE COUPLED WITH
  - COMPLIANCE MONITORING
  - AGREEMENTS FOR REDUCED FUTURE MONITORING DEMANDS & INCREASED FLEXIBILITY IF SUCCESSFUL

DREDGING CONTROLS

- CONCEPT - *REDUCE SOURCE GENERATION BY:*
  - *RESTRICTING OPERATION*
  - *MODIFYING EQUIPMENT*
- ADVANTAGES
  - EASY IMPLEMENTATION
  - COMPLIANCE CAN BE MONITORED
  - NO DIRECT COSTS

EXAMPLE DREDGE CONTROLS

MECHANICAL DREDGES

- OVERFLOW RESTRICTIONS
- BUCKET SELECTION
- MINIMUM CYCLE TIME
- HOIST/DROP SPEED

EXAMPLE DREDGE CONTROLS

CUTTERHEAD DREDGES

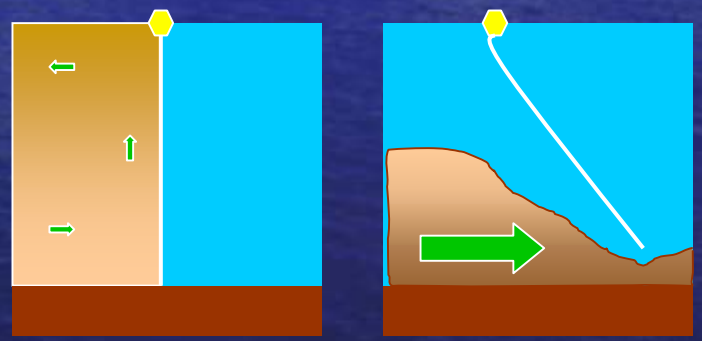
- SWING SPEED
- CUTTER ROTATION SPEED
- DREDGING DEPTH

SITE CONTROLS

- **CONCEPT**
  RESTRICT SEDIMENT TRANSPORT TO LIMIT WATER QUALITY IMPACTS
- **ADVANTAGES**
  - **EASY IMPLEMENTATION**
  - **COMPLIANCE CAN BE MONITORED**

SILT CURTAINS/SCREENS

- WORK UNDER APPROPRIATE CONDITIONS
- EXPENSIVE
  - INITIAL COST
  - PLACEMENT
  - MAINTENANCE



Typical silt curtain response to current.

MONITORING

- SET CLEAR AND OBTAINABLE OBJECTIVES
  - FEEDBACK TO DECISIONMAKING
  - IMPROVED DATASET
- DESIGN TO MEET OBJECTIVES
- SINGLE-POINT SAMPLES OF LITTLE VALUES
- AUTOMATED MONITORING?

QUESTIONS?